

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

These amendments introduce no new matter and support for the amendment is replete throughout the specification and claims as originally filed. These amendments are made without prejudice and are not to be construed as abandonment of the previously claimed subject matter, or agreement with any objection or rejection of record.

**Listing of Claims:**

**Claims 1 to 30 (Cancelled).**

**31. (Currently amended)** A composition comprising a protein, wherein the protein comprises two or more redox active amino acids selected from the group consisting of: a 3,4-dihydroxy-L-phenylalanine (DHP), a 3,4,5-trihydroxy-L-phenylalanine, a 3-nitro-tyrosine, a 4-nitro-phenylalanine, and a 3-thiol-tyrosine;

the composition further comprising:

- i) at least one orthogonal tRNA (O-tRNA), wherein the O-tRNA comprises or is encoded by a polynucleotide sequence as set forth in SEQ ID NO: 2;
- ii) at least one orthogonal aminoacyl-tRNA synthetase (O-RS) comprising or derived from an RS selected from the group consisting of: an *Archaeoglobus fulgidus* synthetase, a *Methanosarcina mazei* synthetase, a *Methanobacterium thermoautotrophicum* synthetase, and a *Pyrococcus horikoshii* synthetase, wherein the O-RS preferentially aminoacylates the O-tRNA with one of the redox active amino acids; and
- iii) a nucleic acid that encodes the protein, wherein the nucleic acid comprises at least two selector codons that are recognized by the O-tRNA.

**32. (Cancelled)**

**33. (Cancelled)**

**34. (Original)** The composition of claim 31, wherein the composition comprises a pharmaceutically acceptable carrier.

**35. (Previously presented)** The composition of claim **31**, wherein the protein further comprises at least one unnatural amino acid that is not a 3,4-dihydroxy-L-phenylalanine (DHP), a 3,4,5-trihydroxy-L-phenylalanine, a 3-nitro-tyrosine, a 4-nitro-phenylalanine, or a 3-thiol-tyrosine.

**36. (Cancelled)**

**37. (Previously presented)** The composition of claim **31**, wherein the two or more redox active amino acids are the same.

**38. (Previously presented)** The composition of claim **31**, wherein at least two of said redox active amino acids are different.

**39. (Previously presented)** The composition of claim **31**, wherein the protein comprises a myoglobin polypeptide or a portion thereof.

**40. (Cancelled)**

**41. (Previously presented)** The composition of claim **31**, wherein the protein is capable of undergoing oxidation.

**42. (Previously presented)** The composition of claim **31**, wherein the protein is capable of undergoing (i) oxidation or (ii) a shift in reductive peak potential as measured by voltammetric response in comparison to a corresponding protein that lacks said at least two redox active amino acids, and wherein said oxidation or shift in reductive peak potential require said at least two redox active amino acids.

**43. (Previously presented)** The composition of claim **31**, wherein at least one of said two or more redox active amino acids is 3,4-dihydroxy-L-phenylalanine (DHP).

**44. (Previously presented)** The composition of claim **31**, wherein the redox active amino acid is a redox catalyst.

**45. (Cancelled).**

**46. (Previously presented)** The composition of claim **31**, further comprising an O-RS comprising an amino acid sequence comprising SEQ ID NO.: 1.

47. (Currently amended) ~~The composition of claim 31,~~ A composition comprising:

a protein, wherein the protein comprises two or more redox active amino acids selected from the group consisting of: a 3,4-dihydroxy-L-phenylalanine (DHP), a 3,4,5-trihydroxy-L-phenylalanine, a 3-nitro-tyrosine, a 4-nitro-phenylalanine, and a 3-thiol-tyrosine,~~further comprising~~

an O-tRNA,

an aminoacyl-tRNA synthetase comprising ~~the~~an amino acid sequence at least 90% identical to~~of~~ SEQ ID NO: 1 that preferentially aminoacylates the O-tRNA with ~~at least one of the two or more~~a redox active amino acids selected from the group,

and a nucleic acid encoding a polypeptide of interest, said nucleic acid comprising at least ~~two~~one selector codons that is~~are~~ recognized by the O-tRNA.